

Accepted Manuscript

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Authors: H. Hamouche, S Makhlof, A Chaouchi, M. Laghrouche

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Manuscript Details

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SNA_2018_572

Title

Humidity Sensor Based on Keratin bio Polymer Film

Article type

Research Paper

Abstract

This paper discusses and compares two planar capacitive humidity sensors with interdigitated and rectangular–spiral shaped. The sensors electrodes are covered by the material under test. In our case, the sensitive element of the sensor based on wool keratin polymer is elaborated in our laboratory. The morphological and structural characteristics of keratin thin film are analyzed by scanning electron microscopy, optic profilometer, Fourier transform infrared spectroscopy, X-ray diffraction and contact angle measurement. The obtained keratin films are highly hydrophilic, porous and rough surface. Humidity measurement results are presented, in particular sensitivity, hysteresis and response time. In conclusion, the fabricated sensors show very high sensitivity and small hysteresis, the highest sensitivity value is achieved by spiral electrodes. The porous and rough surface morphology and low-cost, indicates that keratin sensing material is the appropriate candidate for humidity sensing application.

Keywords

Keratin, biopolymer, humidity sensor, interdigital sensor.

Manuscript category

Physical Sensors

Corresponding Author

Laghrouche Mourad

Hamouche Hayet, Makhlouf Said, Chaouchi Ahcene, Laghrouche Mourad

**Mouloud Mammeri University
(U.M.M.T.O.), L.A.M.P.A. Laboratory,
Department of Electronics,
Faculty of Electrical Engineering
and Computer Science,
Po Box 17 RP 15000,
Tizi Ouzou, Algeria.**

Algiers, 22.08.2018

To Editor Chief of Sensors and Actuators Journal

Subject: Amended version of the Paper SNA_2018_572

Manuscript Title: Humidity Sensor Based on Keratin bio Polymer Film

Dear Editor,

Please find the amended version of our paper entitled “Humidity Sensor Based on Keratin bio Polymer Film” by: Hamouche Hayet, Makhlouf Said, Chaouchi Ahcene and Laghrouche Mourad.

The modifications requested by the referees have been globally taken into consideration. A letter destined to the referees is also given to precise all the modifications that have been done in this paper (see the text below explaining the changes introduced).

Authors' thank you in advance for considering our revised paper.

Yours sincerely,

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